

Claims

1. An anti-angiogenic pigment epithelium-derived factor (PEDF) fragment, the anti-angiogenic peptide having an amino acid sequence consisting essentially of 5-50 contiguous amino acids of SEQ ID NO:1.
2. The anti-angiogenic PEDF fragment of claim 1 comprising an amino acid sequence selected from the group consisting of:
 - (a) TGALVEEEDPF;
 - (b) ERTESIIHRALYYDLIS;
 - (c) DPFFKVPVNLAAAVSNFGYDLRVRSSMSPTTN.
3. The anti-angiogenic peptide of claim 1 or claim 2, wherein the PEDF fragment comprises an altered terminus.
4. A composition comprising a PEDF fragment of claim 1, 2, or 3 and a pharmaceutical buffer or excipient.
5. A method of inhibiting endothelial cell migration or proliferation comprising contacting an endothelial cell with a composition comprising an effective amount of a pigment epithelium-derived factor (PEDF) peptide fragment, wherein the PEDF peptide fragment has anti-angiogenic activity.
6. The method of claim 5, wherein the endothelial cell is contacted *in vitro*.
7. The method of claim 6, wherein the endothelial cell is contacted *in vivo*.
8. The method of claim 7, the contacting comprises the step of administering the effective amount PEDF peptide fragment to a patient with a disease or disorder associated with neovascularization.
9. The method of claim 8, wherein the effective amount of PEDF peptide fragment inhibits angiogenesis.
10. The method of claim 9, wherein the disease or disorder associated with neovascularization is an ophthalmologic disease or disorder.
11. The method of claim 9, wherein the disease or disorder associated with neovascularization is a malignant or metastatic condition.
12. The method of claims 7, 8, 9, 10, or 11, wherein the composition comprises a pharmaceutical buffer or excipient.

13. Use of an anti-angiogenic pigment epithelium-derived factor (PEDF) fragment of claim 1, 2, or 3 in the preparation of a medicament.
14. Use of an anti-angiogenic pigment epithelium-derived factor (PEDF) fragment of claim 1, 2, or 3 in the preparation of a medicament for treating cancer.
15. Use of an anti-angiogenic pigment epithelium-derived factor (PEDF) fragment of claim 1, 2, or 3 in the preparation of a medicament for treating an ophthalmological disease or disorder.
16. A medical device comprising the composition of claim 4.
17. A method of treating cancer comprising administering a therapeutically effective amount of an anti-angiogenic pigment epithelium-derived factor (PEDF) fragment to a patient in need thereof.
18. A method of treating an ophthalmological disease or disorder comprising administering a therapeutically effective amount of an anti-angiogenic pigment epithelium-derived factor (PEDF) fragment to a patient in need thereof.
19. A method of predicting whether a diabetic patient will develop proliferative retinopathy comprising determining the ratio of vascular endothelial growth factor (VEGF) to PEDF in an ocular fluid sample from said patient.
20. The method of claims 19, wherein the ratio of VEGF to PEDF is compared to one or more control ratios.
21. An anti-angiogenic PEDF fragment analog comprising one or more amino acid insertions, deletions, or substitutions to a PEDF fragment of claim 1, 2, or 3.